(12) UK Patent Application (19) GB (11) 2 067 467 A

(21) Application No 8100271
(22) Date of filing 6 Jan 1981
(30) Priority data
(31) 80/00925
(32) 11 Jan 1980
(33) United Kingdom (GB)
(43) Application published 30 Jul 1981
(51) INT CL³ B42D 15/02
(52) Domestic classification B6A C11 C21 C53 C72 C91 L
(56) Documents cited GB 1543602 GB 1543601 GB 1327918
(58) Field of search B6A
(71) Applicant Donald Eastwood Beaumont, 23 Bracken Drive, Dunston, Gateshead
(72) Inventor Donald Eastwood Beaumont
(74) Agents Graham Jones & Company, 48 Mereworth Drive, Shooters Hill, London, SE18 3EE

(54) **A transaction card device having an electrical operated circuit**

(57) A transaction card device (2) having an electrically operated circuit for enabling the card device to have purchasing monetary values input into it and to have the value of goods purchased deducted from the total purchasing monetary value of the card device, and the card device having at least one display section (4,6) for displaying as a monetary value at least the current purchasing power of the card device.

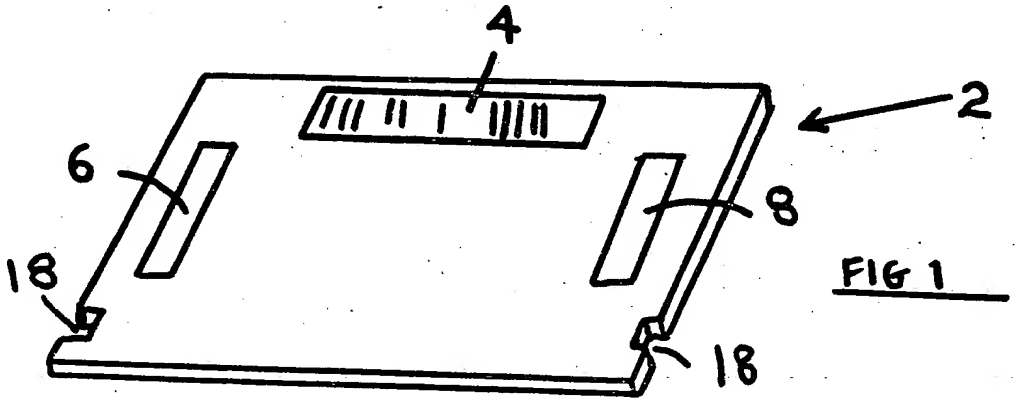

FIG 1

GB 2 067 467 A

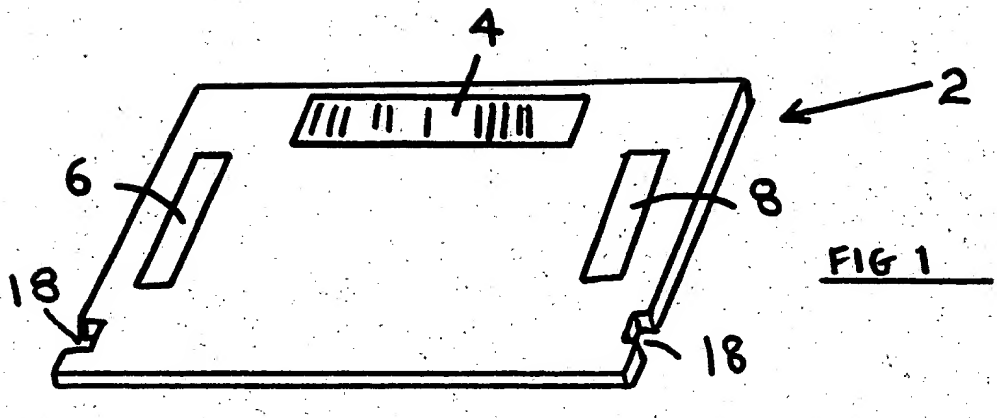

FIG 1

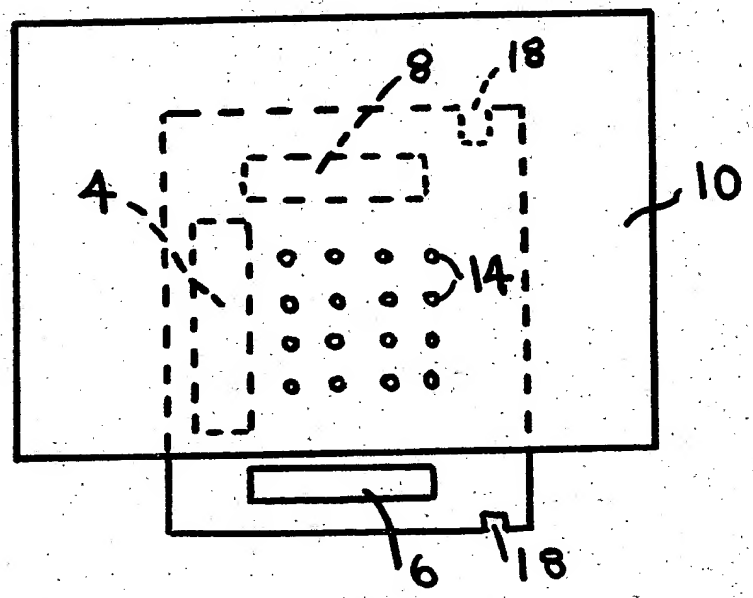

FIG 2

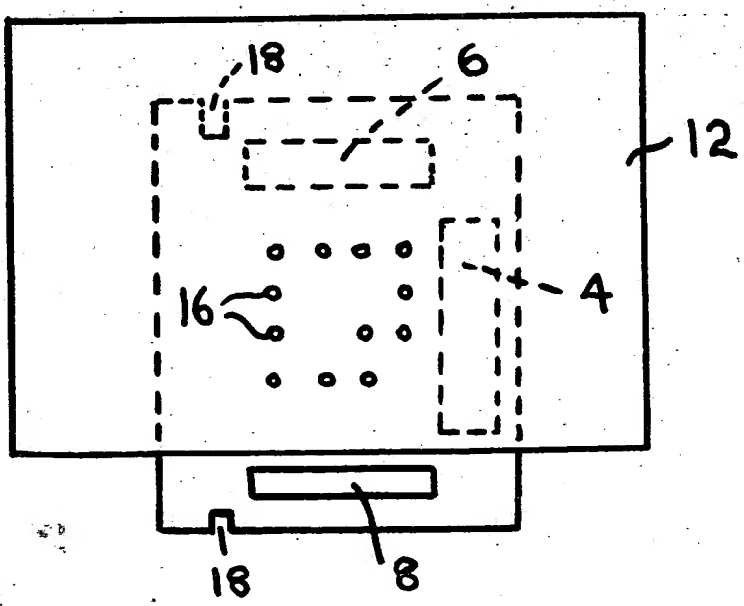

FIG 3

SPECIFICATION

A transaction card device having an electrically operated circuit

This invention relates to a transaction card device having an electrically operated circuit. This invention also relates to a transaction system including a plurality of the transaction card devices.

It is an aim of the present invention to provide a transaction card device that enables goods, including services, to be bought without actual cash, cheques or credit cards. It is a further aim of the invention to reduce manpower at the point where the transaction for the goods is made.

Accordingly, this invention provides a transaction card device having an electrically operated circuit for enabling the card device (a) to have purchasing monetary values input into it and (b) to have the value of goods purchased deducted from the total purchasing monetary value of the card device, and the card device having at least one display section for displaying as a monetary value at least the current purchasing power of the card device.

Preferably, the transaction card device is one having two display sections, one display section being for displaying as the monetary value the current purchasing power of the card device, and the other display section being for displaying as a monetary value the cost of the goods last purchased.

Usually, the transaction card device will include codes for different goods, whereby the card can only be used for goods for which it has the corresponding code.

The or each display section is preferably a display panel. Other types of display section may however be employed. The actual display may be by means of light emitting diodes or other devices, for example as used in calculators.

Preferably, the electrical operated circuit is an electronically operated circuit. The circuit may be a printed circuit.

The present invention also provides a transaction system comprising a plurality of the transaction cards, a plurality of purchasing control devices for enabling monetary values to be input into the transaction cards, and a plurality of vending control devices for deducting the value of bought goods from the total purchased monetary value.

The card device may be made from any appropriate materials including plastics materials. It is to be understood that the word "card" as used herein is not intended to restrict the materials from which the transaction card device is made only to cardboard.

An embodiment of the invention will now be described solely by way of example and with reference to the accompanying drawings in which:

Figure 1 is a perspective view of a transaction card device;

Figure 2 shows the card of Figure 1 inserted in a vending device at a vending control point; and

Figure 3 shows the card of Figure 1 inserted in a purchasing device at a purchase control point.

Referring to the drawings, a transaction card device 2 is shown onto which purchased units of value, for example pence, can be recorded. The card device 2 can be the means of acquiring within defined limits, goods or services up to the value of that stored on the card device thereby dispensing with actual cash, cheques or credit cards and reducing or eliminating manpower at the point where transactions are made.

The card device 2 can be peculiar to one particular service, (e.g. one travel company) or applicable to a number of goods or services (e.g. general travel, petrol stations, night banks and stores) dependent upon the original intentions of the card device holder, each service or goods point being identified by a secret code, e.g. a bar code or a number which is shown in Figure 1 as a bar code 4.

The card device 2 is preferably of approximately the same overall dimensions as a bank cheque card and contains a built in circuit capable, when activated from appropriate external sources, of

(i) accepting and recording units of purchasing value purchased;

(ii) recording the value of goods acquired at any one time; and

(iii) deducting the value of (ii) from the value (i).

The card device 2 contains two display sections in the form of windows 6, 8. The window 6 displays the value of goods just purchased. The window 8 displays the current remaining purchasing value of the card device 2 after the cost of the latest purchases has been deducted. The displays may be either permanent or for a limited period.

Preferably, the card device 2 will display as a prefix to (ii) above, a day code number for accounting and other audit/check purposes.

The code 4 may be a series of secret numbers and/or bars or other code signs capable of being scanned, for example with a light operating device similar to existing light pens presently in use. The code 4 may:

(a) identify the ownership of the card device;

(b) validate the card device for use at predetermined vending points;

(c) reject the card device when offered to other vending points not predetermined; and

(d) when satisfied on the above point (b), allow the activation of the card device's circuit by means of appropriate external sources.

The activating and functioning processes of the card device are carried out at purchasing control points and at vending control points. A purchasing control device 10 which would be located at a purchasing control point, is illustrated in Figure 2. A vending control device 12, which would be located at a vending control point, is illustrated in Figure 3.

Purchasing control points may be situated at various locations common to public usage, for example Post Offices. The purchasing control devices 10 will be provided with an appropriate source of power to activate the card device's internal circuit. Each purchasing control point may be under manual control and on receipt of money the control will translate that value into units, e.g. pence, and record those units onto the card device 2. Subsequent units purchased will be similarly recorded and will be added by means of the card device's circuit onto the exist-

ing retained units showing on the card device, the total sum being displayed in the window 8.

The purchase control devices 10 will have the ability to bring into use special codes which will restrict the usage of the card device 2 to certain service or goods stations as originally requested by, or imposed on, the card device holder. The purchasing control devices 10 may scan the code of the card device 2 and record both the card device number and the value of units purchased, at that time, for accounting purposes.

Vending control points may be situated at points where goods and/or services are bought, for example adjacent to the driver on one-man buses, at ticket barriers at rail stations, and at till/checkout points in stores. Purchased values may be initiated by either the purchaser, e.g. at local travel entry points – bus or barrier; or by the vendor's staff, e.g. at stores or air travel centres; or automatically where fixed sums are involved, e.g. fixed travel values, or by night banks. The card device 2 may or may not open barriers.

The vending control devices at the vending control points may have the means to scan the code to ensure that the card device is valid for that vending source. If an invalid state occurs, the rejection follows.

The vending control points will contain an appropriate power source activating the internal circuit of the card device 2, both to register the value of the goods/service purchased and to deduct that amount from the previous total of units stored on the card device. Where the value of goods requested is greater than the total of units stored, the card device will be rejected. The vending control device may also record the card device number, the value of goods purchased, and the day code onto an internal statement provision.

As a safeguard against unauthorised use following loss or theft, the card device holder will be aware of that part of the secret numbers or code which identifies ownership of the card device, and any purchases above a predetermined value could require that the person presenting the card device quotes that number to the vendor's staff or, and certainly in the case of night banks, will operate numbers or code buttons and only when these coincide with the secret code will the vending take place.

If it is not convenient to have a permanent display of the latest purchase value of the residual value on the card device, it may be desirable on local travel to provide inspectors with battery operated machines to activate these displays. The inspector machines would preferably have no other functions or power.

Accounting will follow the lines of Giro. All credits, that is units purchased, will be held at a central office. The tabulation of all services provided as the result of the print off from the vending control point may be submitted to the central office and companies credited as appropriate. Where the card device usage is restricted to one company, then that company may or may not carry out its own accounting.

It is to be appreciated that the embodiment of the invention described above has been given by way of example only and that modifications may be effected. Thus, for example, the card device 2 may show monetary values in any unit of currency appropriate to the country in which it is being used. The circuitry for the card device 2 may be similar to that presently used in pocket calculators. The parts for the purchasing control devices and the vending control devices need not be complex and they can based on the construction and operation of the automatically operated bank cash points that are presently in use. The card devices 2 can be issued gratuitously or at cost as desired. The purchasing control devices and the vending control devices may have keys 14, 16 respectively, the keys 14 enabling the input of purchased monetary values onto the card device 2, and the keys 16 enabling the card device 2 to display the purchase price of the goods last purchased and the remaining total purchasing monetary value. Where standard charges operate, only fixed keys may be required. The card device 2 may be optionally provided with centering slots 18.

CLAIMS

1. A transaction card device having an electrically operated circuit for enabling the card device (a) to have purchasing monetary values input into it and (b) to have the value of goods purchased deducted from the total purchasing monetary value of the card device, and the card device having at least one display section for displaying as a monetary value at least the current purchasing power of the card device.

2. A transaction card device according to claim 1 and having two display sections, one display section being for displaying at the monetary value the current purchasing power of the card device, and the other display section being for displaying as a monetary value the cost of the goods last purchased.

3. A transaction card device according to claim 1 or claim 2 and including codes for different goods, whereby the card can only be used for goods for which it has the corresponding code.

4. A transaction card according to any one of the preceding claims in which the or each display section is a display panel.

5. A transaction card according to any one of the preceding claims in which the electrically operated circuit is an electronically operated circuit.

6. A transaction card substantially as herein described with reference to the accompanying drawings.

7. A transaction system comprising a plurality of transaction cards as claimed in any one of the preceding claims, a plurality of purchasing control devices for enabling purchased monetary values to be input into the transaction cards; and a plurality of vending control devices for deducting the value of bought goods from the total purchased monetary value.

Printed for Her Majesty's Stationery Office by The Tweeddale Press Ltd., Berwick-upon-Tweed, 1981.
Published at the Patent Office, 25 Southampton Buildings, London, WC2A 1AY, from which copies may be obtained.